REMARKS

The Applicants request reconsideration of the rejection.

New claims 11 and 12 are proposed in substitution for claims 1 and 2, which have been canceled. Thus, the total number of claims remains the same.

Claims 3-4 and 11-12 will be pending after entry of this amendment.

Claims 1-4 were rejected under 35 U.S.C. 103(a) as being unpatentable over Atobe et al U.S. Patent No. 6,146,606 in view of Ham et al U.S. Patent No. 5,120,516 and optionally further in view of JP 08-318122 or Lang et al U.S. Patent No. 6,235,256.

At the outset, it is not clear whether JP '122 or Lang, or both, are being applied in the rejection. "Optionally further in view of…" leaves the Applicants to determine whether JP '122 or Lang is considered necessary in the rejection. Reference to the discussion of these references is similarly unhelpful: the Examiner states that "optionally, JP '455 can be applied" (although JP '455 is not cited in the rejection), and "alternatively, Lang '256 can be applied." Thus, the Applicants can only assume that the rejection is over the teachings of Atobe in view of Ham, and address it accordingly.

In response to a Request for Reconsideration filed April 11, 2003, inquiring into the extent to which Atobe is prior art to the present claims, the Examiner replied that the portion of Atobe relied upon in the final rejection is found in the provisional application 60/147,142, pages 5-6. Specifically, Atobe is applied as teaching that decomposing nitrogen fluorides contained in an exhaust gas has been known, with prior art methods being roughly classified into (1) decomposition by a reacting agent (catalyst) and (2) decomposition by combustion. The Examiner also relies on these pages as teaching that a method of converting nitrogen fluoride into stable solid fluorides is known to generate NO_x as a by-product, requiring a special treatment to reduce the NO_x. The Examiner notes that Atobe does not disclose the claimed step of washing the gas generated by the decomposition and removing mist from the effluent stream after the caustic scrubbing step.

Thus, the Examiner cites Ham as teaching a process for removing NO_x emissions from combustion effluents using a wet scrubber.

The Applicants note that the primary reference to Atobe is directed to solving the problem of generating by-products from the decomposition of fluorinated nitrogen. Atobe also

discloses that a problem with the prior art methods of converting nitrogen fluoride into stable solid fluoride is that, when a metal oxide is used, NO_x is generated as a by-product and a special treatment to reduce the NO_x is necessary. As a result, Atobe positively teaches to suppress the generation of NO_x by controlling the temperature of reacting the fluorine component with a reactant, so as to avoid the need to wash the gas or separate mist after contacting the gas with the reactant. Hence, Atobe does not teach to wash the exhaust gas as noted by the Examiner.

Thus, the Examiner turns to Ham as disclosing a method of removing NO_x emissions from combustion effluents using a wet scrubber. However, as noted above, Atobe positively teaches that no exhaust gas washing is required or desired. Therefore, the person of ordinary skill is taught away from any combination of Ham's exhaust gas washing with the teachings of Atobe. By definition, a combination of Atobe and Ham is improper under 35 U.S.C. 103.

Furthermore, it is well known to use a wet scrubber as taught by Ham in a treatment of exhaust gas emissions from a coal combustion unit or diesel engine. A feature of the present invention, however, is not in the use of a wet scrubber itself, but in the decomposition of a PFC gas

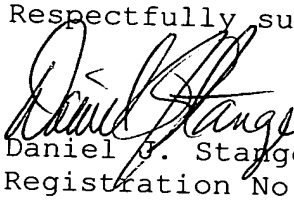
containing at least one of NF_3 and SF_6 into decomposition products containing HF and at least one of NO_x and SO_x by a decomposition reaction, followed by washing the gas containing the decomposition products in a water washing step or an alkaline aqueous solution washing step. Then, following a mist separating step provided after the washing step to separate the PFC decomposition products such as NO_x and SO_x, the gas is released to the atmosphere. The prior art has not recognized that removal of the mist containing NO_x and SO_x would be effective to avoid the choking and corrosion of exhaust pipes and exhaust blowers following the washing steps of the prior art. In particular, Ham is silent on this problem. Therefore, even in combination with Atobe, Ham does not lead the person of ordinary skill to the present invention.

None of the references mentioned elsewhere in the Office Action fills these teachings missing in Atobe and Ham. JP' 122 discloses a treatment of flon decomposition exhaust gas. There is no discussion of treating a PFC gas including NF_3 and SF_6. Furthermore, decomposition of the flon gas in JP '122 does not result in a generation of NO_x and So_x gases. Lang relates to a method and apparatus for removing acidic gas components by washing with a scrubbing tower. However, Lang

is silent as to the treatment of gas containing decomposition products generated by the decomposition of NF_3 or SF_6. Further, Lang is silent to the further treatment of exhaust after the washing step. Finally, JP '455 generally relates to the treatment of waste printed substrates, but is silent as to the separation of mist in the gas after the washing step.

In view of the foregoing amendments and remarks, the Applicants request reconsideration of the rejection and allowance of the claims.

Respectfully submitted,



Daniel J. Stanger
Registration No. 32,846
Attorney for Applicant(s)

MATTINGLY, STANGER & MALUR, P.C.
1800 Diagonal Road, Suite 370
Alexandria, Virginia 22314
Telephone: (703) 684-1120
Facsimile: (703) 684-1157
Date: June 26, 2003